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LEARNING DISABILITIES

Analysis of 69 children

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ABSTRACT -With this article we intend to demonstrate the importance of evaluation and follow up of children with learning disabilities, through a multidisciplinary team. As well as to establish the need of intervention. We evaluate 69 children, from Aline Picheth Public School, in Curitiba, attending first or second grade of elementary school, through general and evolutionary neurological examination, pediatric checklist symptoms, and social, linguistic and psychological (WISC-III, Bender Infantile and WPPSI-figures) evaluation. The incidence was higher in boys (84,1%), familiar history of learning disabilities was found in 42%, and writing abnormalities in 56,5%. The most frequent diagnosis was attention deficit and hyperactivity disorder, in 39,1%. With this program, we aimed to reduce the retention taxes and stress the importance of this evaluation, and, if necessary, multidisciplinar intervention in the cases of learning disabilities.

KEY WORDS: learning disabilities, attention deficit and hyperactivity disorder.

Dificuldades de aprendizado: análise de 69 crianças

RESUMO - Neste estudo demonstramos a importância da avaliação e seguimento de crianças com dificuldades no aprendizado, através de equipe multidisciplinar, assim como determinar a necessidade de intervenção em pacientes deste grupo. Avaliamos 69 crianças, provenientes da Escola Estadual Aline Picheth, em Curitiba, cursando primeira ou segunda séries do primeiro grau, através de exame neurológico básico e evolutivo, lista de sintomas, avaliação linguística, social e psicológica (WISC-III, Bender Infantil, WPPSI-gravuras). Houve predominância de meninos (84,1%), presença de história familiar positiva em 42% e alterações de escrita em 56,5%. O diagnóstico encontrado com maior frequência foi déficit de atenção e hiperatividade, em 39,1%. Com este estudo, nós almejamos reduzir as taxas de retenção escolar e enfatizar a importância da avaliação e, se necessário, intervenção multidisciplinar em casos de dificuldades de aprendizado.

PALAVRAS-CHAVE: dificuldades de aprendizado, déficit de atenção e hiperatividade.

The high incidence of retentions and low school production in children of first grade have risen the attention of doctors, educationalists, psychologists, and even the government. Unfortunately in developing countries, like Brazil, the occurrance of financial difficulties, as showed by Time Magazine, edition of march of 1998, that only 1% from G.N.P. (Gross National Product) goes to education less than 25% of them minimum of the quota suggested by United Nations Organization (UNO).

Why they worry about it ? It is because learning implies in individual success either in society as well as in family life, and, consequently, influences the whole development of a nation, leading them to low-paid unskilled jobs [1]. The process of learning creates ability of interpretation and information processing, by reasoning, memory, language, attention and behavior, consequently, learning is a cognitive function, that may be influenced by health, psychological and social problems, and for these reasons, the disabilities should be assessed by a multidisciplinary team.

We would like, by this article, establish diagnostic criteria and remedial measures for school failure, including learning disabilities, always respecting a multidisciplinary approach. We analysed the children

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evaluated by the Neuropediatrics Discipline from Hospital de Clínicas (Curitiba/Paraná) coming from Aline Picheth Public School, and the data that we collected were correlated with the literature.

METHOD

This study is part of a project of longitudinal follow up of cases problems of alphabetization (PROEC – Pró-Reitoria de Extensão nº 147). We analysed 69 children from Aline Picheth Public School, in Curitiba (PR), attending first or second grade of elementary school, presenting complaints of low school performance or behavioral disturbances, such as poor attention span, restless, does not accomplish school program and homework, talk to much, noticed in classroom, from March/1993 to November/1997. The school send them to be evaluated by the multidisciplinary team, following this sequence:

1) Medical examination by neuropediatricians from Hospital de Clínicas of Universidade Federal do Paraná, through a interview with parents, physical examination, general and evolutionary neurological examination (ENE)[2]. We also applied the Pediatric Symptom Checklist, a 35 item questionnaire, to be answered by the parents, and graduated as the frequence of the complaints: 2 points (often), 1 point (sometimes), and 0 (never). Final scores equal or above 28 points are considered to be a behavioral dysfunction[3].

2) Social caracterization, verifying the family structure, and social-economical conditions, through interview made by a social worker.

3) Linguistic evaluation that used a qualitative evaluation, made in school, from text building by the children. The writing is evaluated through the following criterias: fluency and amount of writing, legibility, adequacy of spelling, and meaning, understable, sequency and organization of the text.

4) Psychological tests:

-WISC-III (Weschler Intelligence Scale for Children, third version[4], which graduates intelligence in children with age between 6 and 15 years, by trials in 2 areas (Verbal and Performance), subdivided in 12 subtests. The IQ is classified as: normal (≥ 80), borderline (from 70 to 79), mental retardation (< 70).

Table 1. School complaints

	%	n
Low concentration/hyperactivity	62.3	43
Difficulties in Portuguese	18.8	13
Immaturity	10.1	7
Depressive behavior	4.3	3
Slow performance	2.9	2
Difficulties in mathematics	1.4	1

-WPPSI figures: part of the WPPSI-R (Weschler Preschool and Primary Scale of Intelligence Revised)[5], for children between 4 and 6 years.

-Bender Infantile[6]: evaluates the visuo-spacial orientation, through drawings, applied since 6 years of age.

After the conclusion of this stage, the multidisciplinary team meets, establishing a diagnosis and discussing the necessity of an intervention. At last, the team meets with the parents to decide for the best intervention to the child.

RESULTS

The group consisted of 84.1% (n=58) boys, ranging in age: 6-7 years (11.6%, n=8), 7-9 years (72.5%, n=50), > 9 years (16.9%, n=11). There was no difference in schooling, with 49.3% (n=34) in first grade and 50.7% (n=35) attending second grade.

The averaged monthly income of the families was R$ 1122.27 (R$ 3800 – R$ 300), distributed as: less than R$ 1000 in 42.3% (n=29), from R$ 1000 to R$ 1999 in 42.3% (n=29), and more than R$ 2000 in 15.4% (n=11).

After an initial complaint of poor performance, aggressiveness or other maladaptative behavior, observed by the classroom teacher, and the confirmation by school coordinator, that participates in the multidisciplinary team, the children were directed to evaluation by taking the history of the child through an interview with the parents. The majority of the complaints were child poor attention, does not stay in place and impulsiveness (Tables 1 and 2). No abormalities were found in general neurological examination and ENE.

Family history of learning disabilities (first grade relatives), was found in 42% (n=28) of the group.

Table 2. Parents complaints.

	%	n
Hyperactivity/impulsiveness/ attention deficit	37.5	26
Depression signs	12.5	9
Aggressiviness	8.3	6
Laziness	8.3	5
Language disturbance	4.2	3
Immaturity	4.2	3
No complience	8.3	5
Data not available	16.7	12

Table 3. Pediatric symptom checklist.

	%	n
≥ 28 points	46.4	32
< 28 points	50.7	35
undone	2.9	2

Table 4. Diagnosis.

	%	n
ADHD	39.1	27
Borderline	24.6	17
Mild mental retardation	21.7	15
Emotional problems	10.1	7
Dyslexia	7.2	5
Others	8.8	6

ADHD, attention deficit and hyperactiviy disorder.

Gyneco-obstetrics abnormalities were found in 9 children (13%): neonatal hypoxia in 6, prematurity in 2 and low birth weight in 1.

Writing deficit was present in 56.5% (n=39), that was overcome by the students on the following months with school intervention.In the Pediatric Symptom Checklist, high score (≥ 28) was obtained in 46.4% (n=32) of all children.

The WISC-III test yield the following IQ results: normal in 47.8% (n=33), borderline in 24.6% (n=17) and mild mental retardation in 21.7% (n=15). The test was not applied in 4 students. There was a difference in score of more than 10 between verbal IQ and performance IQ in 50.8% (n=35) of the students.

The Bender Infantile was appropriate for the age in 27.5% (n=19), and lower than expected in 55.1% (n=38) of the children. It was not done in 17.4% of the students (n=12). The WPPSI-figures demonstrated that, when related to the chronological age, was appropriate in 30.4% (n=21) and lower than expected in 50.7% (n=35), and undone in 13 (18.8%) children.

The final diagnosis most frequently found in these stunts were attention deficit and hyperactivity disorders (ADHD) and cognitive deficit (Tables 3 and 4). For the diagnosis of ADHD and depression we used the DSM IV[7] criteria, and emotional problems were based on the interview and information given by the family, and also by the Pediatric Checklist Symptoms. Dyslexia was based on difficulty to read comparing to the grade level complemented by the writing, with the help of the linguistic evaluation.

Ninety-seven percent of the students needed one or more kind of intervention, such as: psychological in 50.7% (n=35), educational in 40.6% (n=28), methylphenidate in 32.9% (n=22), linguistic in 23.3% (n=22). The index of retention of students from Aline Picheth Public School, in first and second grade, in this period of study was 2%.

DISCUSSION

There was a high predominance of boys, with 84.1% of the 69 children, in agreement with literature data that indicates 4 boys for each girl with learning problems, including disabilities. This difference can be explained by the male behavior, easier to be detected by the teachers, because they are more active and inattentive, and less skillfull in school activities.

A surprising point was obtained in the social evaluation, where the averaged monthly income of the families was considered high, taking into account that we were dealing with a public institution. This can be explained by the location of the school, in a middle class district of Curitiba, called Mercês, and, certainly, added to the high cost of private schools.

In our study, 9 children (13%) presented some kind of gyneco-obstetrics intercurrens. Hutton et al.[8], in a 1997 article, mentioned significant relation between low birth weight with reduced cognitive skills and higher difficulty to read. In prematures, motor skills deficit was predominant[9].

The results obtained in our study revealed that psychological testing is very important for the diagnosis of children with school problems, including learning disabilities, mainly by data obtained in the subtests of the verbal/performance areas of WISC-III, leading to a more accurate diagnosis and appropriate intervention. We must consider that some factors may interfere on the WISC-III results, such as: the stress of the child, examinator characteristics (sex, race, age, empathy) and social economical condition, that may lead to a lower productivity during the test[10]. We must say that in our study, the social economical conditions was considered good, and all psychological tests were applied by the same professional.

The results obtained with the application of the Pediatric Symptom Checklist yield a high number of children with score equal or higher than 28 (46.4%). This questionnaire, elaborated by Jellinek, submits high sensibility (95%) but low specificity (68%), and

can be used as a screening for children with behavioral trouble, as we did in our study[3].

The WISC-III was applied to 65 students (94.2%), showing a high number of them with borderline IQ and mild mental retardation, what demonstrates that many of the children labeled as learning disabilities have actually cognitive deficit. For this reason, we shouldn´t blame only school methodology, teachers quality or family structure for the child failure in school. Another important point is the difference between verbal and performance IQ´s observed in the evaluation with WISC-III. Our study showed differences in score higher than 10 points (verbal IQ–performance IQ) in 50.8% of the students. This discrepancy is related by some authors as significative for the diagnosis of learning disabilities, but it is a matter of controversial[11]. Moore and Wielan, for instance, evaluating dyslexic children, found as us these results in 41% [12].

As explained above, to confirm the diagnosis each case was studied by the multidisciplinary team, including medical, educationalist, social, psychological and linguistic evaluation. In our sample, 39.1% (n=27) of the students were diagnosed as attention deficit (with or without hyperactivity). This result is in agreement with literature, which shows the incidence in school children to be around 40%. Jellinek, analysing students with ADHD, observed that 25% of them evolve into learning disabilities.

Guardiola et al.[13], in the evaluation of 484 first grade students of Porto Alegre, applying the WISC scale found that it was below the expected for the age: numbers in 40.5%, accomplishing figures in 39.0% and in codes 71.5%. As a final result, 82 children (16.9%) had difficulty in the learning process.

Ciasca in abstracts of her thesis[14], compare 34 lower class children (average 9 years and 6 months) from a public school of Campinas, and separated in groups: group 1 with 11 children succesfull in school, group 2 with 12 children with difficulties in school, but with no physical or behavioral abnormalities, and group 3, 11 children with difficulties in school with non-incapacitating disfunction. They were submitted to WISC, Luria-Nebraska neuropsychological battery, Bender visual-motor Gestalt test, neurological examination, evoked potential, EEG and single photon emission computed tomography (SPECT). The results showed differences between groups 2 and 3, with the last one showing more abnormalities in temporal, frontal and parietal lobes of the right hemisphere.

The importance of school intervention may be observed in the retention taxes, which was 2% in our study. This good result is probably due to the multidisciplinary approach, acting straight at school, helping the students through early diagnosis and intervention.

The intervention takes into account the restrictions that learning disabilities bring about children´s life, trying to improve their sociability, sports, routine, peers and family relationship; and aiming a chance of a better professional opportunity to their future.

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